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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/835,617	FURLAN ET AL.
	Examiner	Art Unit	
	Michael R. Shannon	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 April 2001*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-55* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage

        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date *20010410, 20010730*.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1-8, 11, 13-16, 20-25, 28, 30-33, 37-39, 43-44, 47-48, and 50-53

are rejected under 35 U.S.C. 102(b) as being anticipated by Driscoll, Jr. et al

(USP 6,043,837), cited by applicant.

To serve as a brief overview, the Driscoll reference discloses a panoramic

image server coupled to a panoramic camera system for converting frames

received by the camera (panoramic frames) into a format that is more conducive

for electronic transmission (for example, standard video frame format) to client

devices. This process is accomplished using warping and scaling of the

panoramic image and not by splitting the image into multiple sections (as will be

discussed below in the Fraser reference with regards to claims 17-19, 34-36, and

40-42).

Regarding claim 1, the claimed method is met as follows:

- The claimed step of "acquiring one of a plurality of immersive video

    frames at a first location, said one of said plurality of immersive

    video frames a portion of an immersive video" is met by the capture

of the annular image by the panoramic camera system [col. 2, lines 50-53].

- The claimed step of "packing said one of said plurality of immersive video frames into at least one standard television video frame" is met by the conversion from a panoramic annular image frame into a standard video frame [col. 4, lines 18-20].

- The claimed step of "sending, from said first location, said at least one standard television video frame capable of being received at a second location using a television signal transmission mechanism" is met by the transmission from the server to the receiving client as illustrated in step 650 [col. 5, lines 49-51].

Regarding claim 2, the claimed method is met as follows:

- The claimed step of "acquiring one of a plurality of immersive video frames at a first location, wherein said one of said plurality of immersive video frames contains a warped representation of a scene and is a portion of an immersive video" is met by the capture of the annular image by the panoramic camera system [col. 2, lines 50-53], which captures the warped image of Figure 2a.

- The claimed step of "packing said one of said plurality of immersive video frames into at least one standard television video frame" is met by the conversion from a panoramic annular image frame into a standard video frame [col. 4, lines 18-20].

- The claimed step of "sending, from said first location, said at least one standard television video frame to a second location using a television signal transmission mechanism" is met by the transmission from the server to the receiving client as illustrated in step 650 [col. 5, lines 49-51].

- The claimed step of "receiving, by a television signal receiver mechanism at said second location, said at least one standard television video frame" is met by the fact that the client inherently receives the frame after the server transmits it [col. 5, lines 61-63].

- The claimed step of "unwarping a portion of said at least one standard television video frame into a view" is met by step 660, wherein the client system expands the warped image into a viewpoint to fill the full rectangular space of the video frame [col. 5, lines 63-65].

- The claimed step of "presenting said view" is met by the display of the full rectangular video frame on a display screen [col. 6, lines 1-2].

Regarding claim 3, the claimed method is met as follows:

- The claimed step of "receiving at least one standard television video frame containing one of a plurality of immersive video frames, by a television signal receiver mechanism" is met by the fact that the client inherently receives the frame after the server transmits it [col. 5, lines 61-63].

- The claimed step of "unwarping a portion of said at least one standard television video frame into a view" is met by step 660, wherein the client system expands the warped image into a viewpoint to fill the full rectangular space of the video frame [col. 5, lines 63-65].

- The claimed step of "presenting said view" is met by the display of the full rectangular video frame on a display screen [col. 6, lines 1-2].

Regarding claim 4, the claimed "method of claim 1 or 2 wherein the steps of acquiring, packing, and sending are repeated with a second one of said plurality of immersive video frames" is met by teaching of a series of panoramic annular images that undergo this process of acquiring, packing, and sending [col. 3, lines 16-19].

Regarding claim 5, the claimed "method of claim 1 further comprising receiving said at least one standard television video frame by a television signal receiver mechanism at said second location" is met by the fact that the client inherently receives the standard frame after the server transmits it [col. 5, lines 61-63].

Regarding claim 6, the claimed "method of claim 5 further comprising steps of: unwarping a portion of said at least one standard television video frame into a view; and presenting said view" is met by step 660, wherein the client system expands the warped image into a viewpoint to fill the full rectangular

space of the video frame [col. 5, lines 63-65] and the display of the full rectangular video frame on a display screen [col. 6, lines 1-2].

Regarding claim 7, the claimed "method of claim 1 or 2 wherein the step of packing comprises steps of: unwrapping an annular image contained within said one of said plurality of immersive video frames; and scaling said unwrapped annular image to fit within said at least one standard television video frame" is met by the extraction of a desired viewpoint from the annular image (step 510), and the rotation and transformation to rectangular coordinates (steps 530 and 550). The process of geometrical transformation is discussed further in column 4, lines 25-31 and column 2, lines 60-64.

Regarding claim 8, the claimed "method of claim 1 wherein said one of said plurality of immersive video frames contains a warped representation of a scene" is met by the warped representation of the scene depicted in the annular image of Figure 2a.

Regarding claim 11, the claimed "method of claim 2 or 8 wherein said warped representation results from capturing said scene through at least one fish-eye lens" is met by the "fish-eye" lens to capture a wider panoramic image [col. 1, line 18].

Regarding claim 13, the claimed "method of claim 2, 3 or 6 wherein the step of presenting comprises a step of displaying said view on a television, a computer monitor, or on a tangible media" is met by the display screen coupled to the client system [col. 6, lines 1-2].

Regarding claim 14, the claimed "method of claim 2, 3 or 6" is met as

follows:

- The claimed step of "reconstructing said one of said plurality of

    immersive video frames from said at least one standard television

    video frame" is met by the expansion of the viewpoint to fill the full

    rectangular space of the video frame [col. 5, lines 63-65].

- The claimed step of "compressing said one of said plurality of

    immersive video frames into a compressed frame" is met by the

    compression of each panoramic image frame [col. 1, lines 47-49].

- The claimed step of "storing said compressed frame in a server

    computer" is met by the panoramic annular image frames being

    stored as panoramic "annular video" frames in an "annular video"

    storage device 430 [col. 3, lines 35-38].

- The claimed step of "serving said compressed frame from said

    server computer to a client device" is met by the transmission from

    the server to the client [col. 5, lines 61-62].

- The claim that the "unwarping is performed at said client device" is

    met by the client system expanding the viewpoint to fill the full

    rectangular space of the video frame [col. 5, lines 63-65].

Regarding claim 15, the claimed "method of claim 14 wherein said client

device is selected from the group consisting of a client computer, a television

receiver, a video conferencing receiver, a personal organizer, a set-top-box, and

an entertainment system" is met by the client system pictured as 495 and 497 in

Figure 4, which, as discussed throughout, is a television receiver or set-top-box.

Also, the embodiment of the video conferencing receiver is pictured in Figure 8

and discussed in column 8.

Regarding claim 16, the claimed "method of claim 14 wherein the step of

serving sends said compressed frame to said client device using a transmission

mechanism selected from the group consisting of a microwave link, a television

cable system, a direct subscriber line (DSL) system, a satellite communication

system, a fiber communication system, an Internet, a digital television system, an

analog television system, a wire system and a wireless system" is met by the

computer network 490, which is inherently taught to be a digital television system

for transmitting MPEG compressed digital video information [col. 4, lines 39-40].

Regarding claim 20, the claimed "method of claim 1 or 2 wherein the step

of acquiring acquires said plurality of immersive video frames from a digital video

camera, an analog video camera in communication with a digitizer, a video

playback device, or a computer" is met by panoramic camera system 405 of

Figure 4.

Regarding claim 21, the claimed apparatus is met as follows:

- The claimed "acquisition mechanism configured to acquire one of a

  plurality of immersive video frames at a first location, said one of

  said plurality of immersive video frames a portion of an immersive

  video" is met by the capture of the annular image by the panoramic

  camera system [col. 2, lines 50-53].

- The claimed step of "packing mechanism configured to pack said one of said plurality of immersive video frames received by the acquisition mechanism into at least one standard television video frame" is met by the conversion from a panoramic annular image frame into a standard video frame [col. 4, lines 18-20].

- The claimed step of "sending mechanism configured to send, from said first location, said at least one standard television video frame capable of being received at a second location using a television signal transmission mechanism, said at least one standard television video frame packed by the packing mechanism" is met by the transmission from the server to the receiving client as illustrated in step 650 [col. 5, lines 49-51].

Regarding claim 22, the claimed system is met as follows:

- The claimed "acquisition mechanism configured to acquire one of a plurality of immersive video frames at a first location, wherein said one of said plurality of immersive video frames contains a warped representation of a scene and is a portion of an immersive video" is met by the capture of the annular image by the panoramic camera system [col. 2, lines 50-53], which captures the warped image of Figure 2a.

- The claimed "packing mechanism configured to pack said one of said plurality of immersive video frames acquired by the acquisition mechanism into at least one standard television video frame" is met

by the conversion from a panoramic annular image frame into a standard video frame [col. 4, lines 18-20].

- The claimed "sending mechanism configured to send from said first location, said at least one standard television video frame to a second location using a television signal transmission mechanism, said at least one standard television video frame responsive to the packing mechanism" is met by the transmission from the server to the receiving client as illustrated in step 650 [col. 5, lines 49-51].

- The claimed "television signal receiver mechanism at said second location configured to receive said at least one standard television video frame sent by the sending mechanism" is met by the fact that the client inherently receives the frame after the server transmits it [col. 5, lines 61-63].

- The claimed "transformation mechanism configured to unwarp a portion of said at least one standard television video frame received by the television signal receiver mechanism into a view" is met by step 660, wherein the client system expands the warped image into a viewpoint to fill the full rectangular space of the video frame [col. 5, lines 63-65].

- The claimed "presentation mechanism configured to present said view as transformed by the transformation mechanism" is met by the display of the full rectangular video frame on a display screen [col. 6, lines 1-2].

Regarding claim 23, the claimed apparatus is met as follows:

- The claimed "television signal receiver mechanism configured to

  receive at least one standard television video frame containing one

  of a plurality of immersive video frames" is met by the fact that the

  client inherently receives the frame after the server transmits it [col.

  5, lines 61-63].

- The claimed "transformation mechanism configured to unwarp a

  portion of said at least one standard television video frame received

  by the television signal receiver mechanism into a view" is met by

  step 660, wherein the client system expands the warped image into

  a viewpoint to fill the full rectangular space of the video frame [col.

  5, lines 63-65].

- The claimed "presentation mechanism configured to present said

  view as transformed by the transformation mechanism" is met by

  the display of the full rectangular video frame on a display screen

  [col. 6, lines 1-2].

Regarding claim 24, the claimed "apparatus of claim 21 or 22 wherein the

packing mechanism further comprises: a mapping mechanism configured to map

an annular image contained within said one of said plurality of immersive video

frames; and a scaling mechanism configured to scale said mapped annular

image to fit within said at least one standard television video frame" is met by the

extraction of a desired viewpoint from the annular image (step 510), and the

rotation and transformation to rectangular coordinates (steps 530 and 550). The

process of geometrical transformation is discussed further in column 4, lines 25-31 and column 2, lines 60-64.

Regarding claim 25, the claimed "apparatus of claim 21 wherein said one of said plurality of immersive video frames contains a warped representation of a scene" is met by the warped representation of the scene depicted in the annular image of Figure 2a.

Regarding claim 28, the claimed "apparatus of claim 22 or 25 wherein said warped representation results from capturing said scene through at least one fish-eye lens" is met by the "fish-eye" lens to capture a wider panoramic image [col. 1, line 18].

Regarding claim 30, the claimed "apparatus of claim 22 or 23 wherein the presentation mechanism comprises a display mechanism configured to display said view on a television, a computer monitor, or on a tangible media" is met by the display screen coupled to the client system [col. 6, lines 1-2].

Regarding claim 31, the claimed "apparatus of claim 22 or 23" is met as follows:

- The claimed "reconstruction mechanism configured to reconstruct said one of said plurality of immersive video frames from said at least one standard television video frame" is met by the expansion of the viewpoint to fill the full rectangular space of the video frame [col. 5, lines 63-65].

- The claimed "compression mechanism configured to compress said one of said plurality of immersive video frames into a compressed

frame" is met by the compression of each panoramic image frame [col. 1, lines 47-49].

- The claimed "storage mechanism configured to store said compressed frame in a server computer" is met by the panoramic annular image frames being stored as panoramic "annular video" frames in an "annular video" storage device 430 [col. 3, lines 35-38].

- The claimed "server mechanism configured to serve said compressed frame from said server computer to a client device" is met by the transmission from the server to the client [col. 5, lines 61-62].

- The claim that the "transformation mechanism is located at said client device" is met by the client system expanding the viewpoint to fill the full rectangular space of the video frame [col. 5, lines 63-65].

Regarding claim 32, the claimed "apparatus of claim 31 wherein said client device is selected from the group consisting of a client computer, a television receiver, a video conferencing receiver, a personal organizer, a set-top-box, and an entertainment system" is met by the client system pictured as 495 and 497 in Figure 4, which, as discussed throughout, is a television receiver or set-top-box. Also, the embodiment of the video conferencing receiver is pictured in Figure 8 and discussed in column 8.

Regarding claim 33, the claimed "apparatus of claim 31 wherein the server mechanism is configured to send said compressed frame to said client device

using a transmission mechanism selected from the group consisting of a

microwave link, a television cable system, a direct subscriber line (DSL) system,

a satellite communication system, a fiber communication system, an Internet, a

digital television system, an analog television system, a wire system and a

wireless system" is met by the computer network 490, which is inherently taught

to be a digital television system for transmitting MPEG compressed digital video

information [col. 4, lines 39-40].

Regarding claim 37, the claimed "apparatus of claim 21 or 22 wherein the

acquisition mechanism acquires said plurality of immersive video frames from a

digital video camera, an analog video camera in communication with a digitizer, a

video playback device, or a computer" is met by panoramic camera system 405

of Figure 4.

Regarding claim 38, the claimed "computer usable data carrier having

computer readable code embodied therein for causing a computer to send one of

a plurality of immersive video frames" is met as follows:

- The claimed "computer readable program code configured to cause

  said computer to effect a packing mechanism configured to pack

  said one of said plurality of immersive video frames capable of

  being received by an acquisition mechanism at a first location into

  at least one standard television video frame, said one of said

  plurality of immersive video frames a portion of an immersive video"

  is met by the conversion from a panoramic annular image frame

  into a standard video frame [col. 4, lines 18-20].

- The claimed "computer readable program code configured to cause said computer to effect a sending mechanism configured to send, from said first location, said at least one standard television video frame capable of being received at a second location using a television signal transmission mechanism, said at least one standard television video frame packed by the packing mechanism" is met by the transmission from the server to the receiving client as illustrated in step 650 [col. 5, lines 49-51].

Regarding claim 39, the claimed "computer program product of claim 38" is met as follows:

- The claimed "computer readable program code configured to cause said computer to effect a mapping mechanism configured to unwrap an annular image contained within said one of said plurality of immersive video frames" is met by the extraction of a desired viewpoint from the annular image (step 510) [col. 4, lines 25-31].

- The claimed "computer readable program code configured to cause said computer to effect a scaling mechanism configured to scale said unwrapped annular image to fit within said at least one standard television video frame" is met by the rotation and transformation to rectangular coordinates (steps 530 and 550). The process of geometrical transformation is discussed further in column 4, lines 25-31 and column 2, lines 60-64.

Regarding claim 43, the claimed "computer program product of claim 38

wherein the acquisition mechanism is capable of acquiring said plurality of

immersive video frames from a digital video camera, an analog video camera in

communication with a digitizer, a video playback device, or a computer" is met by

panoramic camera system 405 of Figure 4.

Regarding claim 44, the claimed "computer program product of claim 38

wherein said one of said plurality of immersive video frames contains a warped

representation of a scene" is met by the warped representation of the scene

depicted in the annular image of Figure 2a.

Regarding claim 47, the claimed "computer program product of claim 44

wherein said warped representation results from capturing said scene through at

least one fish-eye lens" is met by the "fish-eye" lens to capture a wider panoramic

image [col. 1, line 18].

Regarding claim 48, the claimed "computer usable data carrier having

computer readable code embodied therein for causing a computer to present one

of a plurality of immersive video frames, said computer readable code

comprising: computer readable program code configured to cause said computer

to effect a transformation mechanism configured to unwarp a portion of said one

of said plurality of immersive video frames contained in at least one standard

television video frame received by a television signal receiver mechanism into a

view, said at least one standard television video frame, containing one of said

plurality of immersive video frames; and computer readable program code

configured to cause said computer to effect a presentation mechanism

configured to present said view as transformed by the transformation

mechanism" is met by step 660, wherein the client system expands the warped

image into a viewpoint to fill the full rectangular space of the video frame [col. 5,

lines 63-65] and the display of the full rectangular video frame on a display

screen [col. 6, lines 1-2].

Regarding claim 50, the claimed "computer program product of claim 48

wherein the presentation mechanism comprises computer readable program

code configured to cause said computer to effect a display mechanism

configured to display said view on a television, a computer monitor, or on a

tangible media" is met by the display screen coupled to the client system [col. 6,

lines 1-2].

Regarding claim 51, the claimed "computer program product of claim 48"

is met as follows:

- The claimed "computer readable program code configured to cause
  said computer to effect a reconstruction mechanism configured to
  reconstruct said one of said plurality of immersive video frames
  from said at least one standard television video frame" is met by the
  expansion of the viewpoint to fill the full rectangular space of the
  video frame [col. 5, lines 63-65].

- The claimed "computer readable program code configured to cause
  said computer to effect a compression mechanism configured to
  compress said one of said plurality of immersive video frames into

a compressed frame" is met by the compression of each panoramic

image frame [col. 1, lines 47-49].

- The claimed "computer readable program code configured to cause

  said computer to effect a storage mechanism configured to store

  said compressed frame in a server computer" is met by the

  panoramic annular image frames being stored as panoramic

  "annular video" frames in an "annular video" storage device 430

  [col. 3, lines 35-38].

- The claimed "computer readable program code configured to cause

  said computer to effect a server mechanism configured to serve

  said compressed frame from said server computer to a client

  device" is met by the transmission from the server to the client [col.

  5, lines 61-62].

- The claim that the "transformation mechanism is located at said

  client device" is met by the client system expanding the viewpoint to

  fill the full rectangular space of the video frame [col. 5, lines 63-65].

Regarding claim 52, the claimed "computer program product of claim 51

wherein said client device is selected from the group consisting of a client

computer, a television receiver, a video conferencing receiver, a personal

organizer, a set-top-box, and an entertainment system" is met by the client

system pictured as 495 and 497 in Figure 4, which, as discussed throughout, is a

television receiver or set-top-box. Also, the embodiment of the video

conferencing receiver is pictured in Figure 8 and discussed in column 8.

Regarding claim 53, the claimed "computer program product of claim 51

wherein the server mechanism is configured to send said compressed frame to

said client device using a transmission mechanism selected from the group

consisting of a microwave link, a television cable system, a direct subscriber line

(DSL) system, a satellite communication system, a fiber communication system,

an Internet, a digital television system, an analog television system, a wire

system and a wireless system" is met by the computer network 490, which is

inherently taught to be a digital television system for transmitting MPEG

compressed digital video information [col. 4, lines 39-40].

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

4.   Claims 9-10, 12, 26-27, 29, 45-46, 49, and 54-55 are rejected under 35

U.S.C. 103(a) as being unpatentable over Driscoll, Jr. et al (USP 6,043,837),

cited by applicant.

Regarding claims 9, 26, and 45, the claim of "capturing said scene through

a catadioptric lens" is not specifically disclosed by the Driscoll reference. While

Driscoll does disclose all of that discussed above with regards to claims 2, 8, 22,

25, and 44, he does not disclose the catadioptric lens. The examiner takes

Official Notice that it is notoriously well known in the art to use catadioptric lenses

to capture panoramic images. Driscoll discloses the use of a fish-eye lens,

however, a catadioptric lens could easily be used to arrive at the same claimed

invention. It would have been obvious to one of ordinary skill in the art at the

time of the invention to utilize a catadioptric lens, in order to receive a panoramic

image, just as the fish-eye lens receives a panoramic image.

Regarding claims 10, 27, and 46, the claim of "capturing said scene

through at least one wide-angle lens" is not specifically disclosed by the Driscoll

reference. While Driscoll does disclose all of that discussed above with regards

to claims 2, 8, 22, 25, and 44, he does not disclose the wide-angle lens. The

examiner takes Official Notice that it is notoriously well known in the art to use

wide-angle lenses to capture panoramic images. Driscoll discloses the use of a

fish-eye lens, however, a wide-angle lens could easily be used to arrive at the

same claimed invention. It would have been obvious to one of ordinary skill in

the art at the time of the invention to utilize a wide-angle lens, in order to receive

a panoramic image, just as the fish-eye lens receives a panoramic image.

Regarding claims 12, 29, and 49, the Driscoll reference teaches all of that

which is discussed above with regards to claims 2, 3, 6, 22, 23, and 48, however,

does not expressly disclose the use of a "recording mechanism configured to

record said view on a videotape, a disk, an optical film or other tangible recording

media." The examiner takes Official Notice that it is notoriously well known in the

art to utilize recording mediums at the receiver device for the purpose of saving

recordings and watching recorded programs in non-real-time. Therefore, the

examiner submits that it would have been clearly obvious to one of ordinary skill

in the art at the time of the invention to utilize a recording mechanism and

method in order to provide a non-real-time approach to viewing panoramic

images and videos.

Regarding claim 54, the claimed "computer program product of claim 38 or

48 wherein the computer usable data carrier is a computer readable media" is

not expressly disclosed by the Driscoll reference. While the Driscoll reference

does teach all of that which is discussed above with regards to claims 38 and 48,

it does not disclose the computer readable media. The examiner takes Official

Notice that it is notoriously well known in the art the use computer readable

media (such as CD-ROMs) to provide computer program products to users. In a

system that utilizes client systems and servers (both computers), it would have

been obvious to one of ordinary skill in the art at the time of the invention to use

computer readable media to deliver the instructions needed to control the server

and the clients.

Regarding claim 55, the claimed "computer program product of claim 38 or

48 wherein the computer usable data carrier is a carrier wave" is not expressly

disclosed by the Driscoll reference. While the Driscoll reference does teach all of

that which is discussed above with regards to claims 38 and 48, it does not

disclose the carrier waves. The examiner takes Official Notice that it is

notoriously well known in the art the use carrier waves (such as program code

downloaded over a network or Internet) to provide computer program products to

users. In a system that utilizes client systems and servers (both computers), it would have been obvious to one of ordinary skill in the art at the time of the invention to use carrier waves to deliver the instructions needed to control the server and the clients.

5.   Claims 17-19, 34-36, and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Driscoll, Jr. et al (USP 6,043,837), cited by applicant, in view of Fraser et al (USP 5,430,486), cited by examiner.

Regarding claim 17, the Driscoll reference teaches all of that which is discussed above with regards to claims 1 and 2. The Driscoll reference does not, however, disclose the steps of apportioning, scaling, and storing the apportioned frames. The Fraser reference meets the claimed "method of claim 1 or 2 wherein the step of packing further comprises" the following.

- The claimed step of "apportioning said one of said plurality of immersive video frames into a plurality of portions" is met by the dividing of high resolution computer images into a number of rectangular segments [col. 2, lines 30-32].

- The claimed step of "scaling one or more of said plurality of portions" is met by the scaling so as to incorporate the details into a standard video frame [col. 2, lines 32-34].

- The claimed step of "storing each of said scaled plurality of portions in one of said at least one standard television video frame" is met by storing apportioned frames into standard television format frames [col. 2, lines 35-37].

It would have been obvious to one of ordinary skill in the art at the time of the invention to apportion, scale, and store the panoramic frames into standard video frames, in order to transport high resolution video images over a standard format video structure.

Regarding claim 18, the Driscoll reference teaches all of that which is discussed above with regards to claims 1 and 2. The Driscoll reference does not, however, disclose the steps of tagging so that apportioned frames can be tracked and organized correctly. The Fraser reference meets the claimed "method of claim 1 or 2 wherein the step of packing further comprises" the following.

- The claimed step of "tagging said first of said at least one standard television video frame as a first partial frame" is met by the information that can be encoded into the standard frame about the relative position of each segment [col. 2, lines 37-38].

- The claimed step of "tagging said second of said at least one standard television video frame as a second partial frame" is met by the same information that can be encoded into the standard frame about the relative position of each segment [col. 2, lines 37-38].

It would have been obvious to one of ordinary skill in the art at the time of the invention to allow the steps of tagging partial frames, in order to recognize the layout of frames for correct tracking and organization of standard frames upon compilation into a high-res frame.

Regarding claim 19, the Driscoll and Fraser references teach all of that which is discussed above with regards to claim 18. The Driscoll reference does not teach the steps of mapping standard frames with the partial frame information. The Fraser reference meets the claimed "method of claim 18 further comprising" the following.

- The claimed step of "mapping a first portion of said one of said plurality of immersive video frames into a first of said at least one standard television video frame" is met by the information and the image being encoded from the high-res image into a standard television frame before transmission [col. 2, lines 30-45].

- The claimed step of "mapping a second portion of said one of said plurality of immersive video frames into a second of said at least one standard television video frame" is met by the same discussion of the information and the image being encoded from the high-res image into a standard television frame before transmission [col. 2, lines 30-45].

It would have been obvious to one of ordinary skill in the art at the time of the invention to allow the steps of mapping frames, in order to recognize the layout of frames for correct tracking and organization of standard frames upon compilation into a high-res frame.

Regarding claim 34, the Driscoll reference teaches all of that which is discussed above with regards to claims 21 and 22. The Driscoll reference does

not, however, disclose the mechanisms for apportionment, scaling, and storage

of the apportioned frames. The Fraser reference meets the claimed "apparatus

of claim 21 or 22 wherein the packing mechanism further comprises" the

following.

- The claimed "apportionment mechanism configured to apportion
  said one of said plurality of immersive video frames into a plurality
  of portions" is met by the dividing of high resolution computer
  images into a number of rectangular segments [col. 2, lines 30-32].

- The claimed "scaling mechanism, responsive to the apportionment
  mechanism, configured to scale one or more of said plurality of
  portions" is met by the scaling so as to incorporate the details into a
  standard video frame [col. 2, lines 32-34].

- The claimed step of "portion storage mechanism configured to store
  each of said scaled plurality of portions in one of said at least one
  standard television video frame" is met by storing apportioned
  frames into standard television format frames [col. 2, lines 35-37].

It would have been obvious to one of ordinary skill in the art at the time of

the invention to apportion, scale, and store the panoramic frames into standard

video frames, in order to transport high resolution video images over a standard

format video structure.

Regarding claim 35, the Driscoll reference teaches all of that which is

discussed above with regards to claims 21 and 22. The Driscoll reference does

not, however, disclose the tagging mechanisms so that apportioned frames can

be tracked and organized correctly. The Fraser reference meets the claimed

"apparatus of claim 21 or 22 wherein the packing mechanism further comprises"

the following.

- The claimed "tag mechanism configured to tag said first of said at

  least one standard television video frame as a first partial frame" is

  met by the information that can be encoded into the standard frame

  about the relative position of each segment [col. 2, lines 37-38].

- The claimed step of "tag mechanism configured to tag said second

  of said at least one standard television video frame as a second

  partial frame" is met by the same information that can be encoded

  into the standard frame about the relative position of each segment

  [col. 2, lines 37-38].

It would have been obvious to one of ordinary skill in the art at the time of

the invention to allow a mechanism for tagging partial frames, in order to

recognize the layout of frames for correct tracking and organization of standard

frames upon compilation into a high-res frame.

Regarding claim 36, the Driscoll and Fraser references teach all of that

which is discussed above with regards to claim 35. The Driscoll reference does

not teach the mapping mechanisms for standard frames with the partial frame

information. The Fraser reference meets the claimed "apparatus of claim 35

further comprising" the following.

- The claimed "mapping mechanism configured to map a first portion

  of said one of said plurality of immersive video frames into a first of

said at least one standard television video frame and a second

portion of said one of said plurality of immersive video frames into a

second of said at least one standard television video frame" is met

by the information and the image being encoded from the high-res

image into a standard television frame before transmission [col. 2,

lines 30-45].

It would have been obvious to one of ordinary skill in the art at the time of

the invention to allow the mechanisms for mapping frames, in order to recognize

the layout of frames for correct tracking and organization of standard frames

upon compilation into a high-res frame.

Regarding claim 40, the Driscoll reference teaches all of that which is

discussed above with regards to claim 38. The Driscoll reference does not,

however, disclose the mechanisms for apportionment, scaling, and storage of the

apportioned frames. The Fraser reference meets the claimed "computer

program product of claim 38 wherein the packing mechanism further comprises"

the following.

- The claimed "computer readable program code configured to cause

  said computer to effect an apportionment mechanism configured to

  apportion said one of said plurality of immersive video frames into a

  plurality of portions" is met by the dividing of high resolution

  computer images into a number of rectangular segments [col. 2,

  lines 30-32].

- The claimed "computer readable program code configured to cause said computer to effect a scaling mechanism, responsive to the apportionment mechanism, configured to scale one or more of said plurality of portions" is met by the scaling so as to incorporate the details into a standard video frame [col. 2, lines 32-34].

- The claimed step of "computer readable program code configured to cause said computer to effect a portion storage mechanism configured to store each of said scaled plurality of portions in one of said at least one standard television video frame" is met by storing apportioned frames into standard television format frames [col. 2, lines 35-37].

It would have been obvious to one of ordinary skill in the art at the time of the invention to apportion, scale, and store the panoramic frames into standard video frames, in order to transport high resolution video images over a standard format video structure.

Regarding claim 41, the Driscoll reference teaches all of that which is discussed above with regards to claim 38. The Driscoll reference does not, however, disclose the tagging mechanisms so that apportioned frames can be tracked and organized correctly. The Fraser reference meets the claimed "computer program product of claim 38 wherein the packing mechanism further comprises" the following.

- The claimed "computer readable program code configured to cause said computer to effect a tag mechanism configured to tag said first

of said at least one standard television video frame as a first partial

frame and said second of said at least one standard television

video frame as a second partial frame" is met by the information

that can be encoded into the standard frame about the relative

position of each segment [col. 2, lines 37-38].

It would have been obvious to one of ordinary skill in the art at the time of

the invention to allow a mechanism for tagging partial frames, in order to

recognize the layout of frames for correct tracking and organization of standard

frames upon compilation into a high-res frame.

Regarding claim 42, the Driscoll and Fraser references teach all of that

which is discussed above with regards to claim 41. The Driscoll reference does

not teach the mapping mechanisms for standard frames with the partial frame

information. The Fraser reference meets the claimed "computer program product

of claim 41 further comprising" the following.

- The claimed "computer readable program code configured to cause

  said computer to effect a mapping mechanism configured to map a

  first portion of said one of said plurality of immersive video frames

  into a first of said at least one standard television video frame and a

  second portion of said one of said plurality of immersive video

  frames into a second of said at least one standard television video

  frame" is met by the information and the image being encoded from

  the high-res image into a standard television frame before

  transmission [col. 2, lines 30-45].

It would have been obvious to one of ordinary skill in the art at the time of the invention to allow the mechanisms for mapping frames, in order to recognize the layout of frames for correct tracking and organization of standard frames upon compilation into a high-res frame.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael R. Shannon whose telephone number is (571) 272-7356. The examiner can normally be reached Monday through Friday 8:00 AM – 5:00PM, with alternate Friday's off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller, can be reached at (571) 272-7353.

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Any inquiry of a general nature or relating to the status of this application

or proceeding should be directed to customer service whose telephone number

is **(571) 272-2600**.

Michael R Shannon
Examiner
Art Unit 2614

Michael R Shannon
May 16, 2005

JOHN MILLER
SUPERVISORY PATENT EXAMINER
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